

Patent Abstracts of Japan

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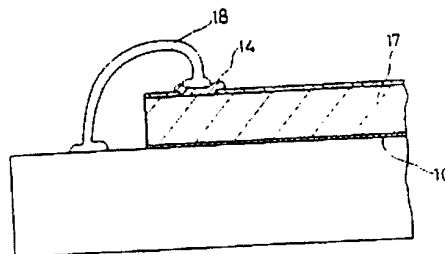
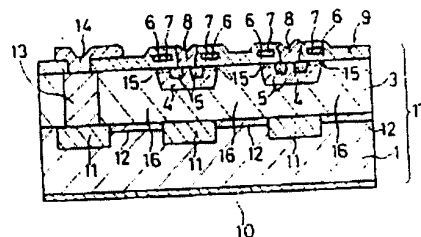
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APPLICANT : MITSUBISHI ELECTRIC CORP;

INVENTOR : MITARAI GORO;

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TITLE : CONDUCTIVITY MODULATION  
MOSFET



ABSTRACT : PURPOSE: To prevent the latch-up of a parasitic thyristor and to obtain a great current, by forming the n<sup>+</sup> drain region directly under a p-type base thickly and the n<sup>+</sup>-type drain region directly under a flow path thinly, and by connecting the n<sup>+</sup> drain region to the first drain electrode by means of an n<sup>+</sup>- type well region.

CONSTITUTION: A high impurity concentration thick n<sup>+</sup> drain region 11 is formed directly under a p-type base region 4. The n<sup>+</sup>-type drain region 12 directly under the n drain region 16 of a current path is also formed thinner than the thickness of the n<sup>+</sup>type drain region 11 directly under the p-type base region 4. This enables the effective pouring of a hole from a p-type drain region 1 to the n<sup>+</sup>-type drain region 16 of the current path and the flow of a great current due to conductivity modulation. Further, the n<sup>+</sup>-type drain regions 11 and 12 are connected to the first drain electrode 10 via an n<sup>+</sup>-type well region 13, the second drain electrode 14 and a wire 18 for leading out an electrode. An electron poured into the current path 16 after a gate signal is made OFF flows in the first drain electrode 10 so the turn-off characteristics are made good.

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